

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Applicants: Stephane Oberli et al.
Serial No.: 10/516,972 Art Unit: 3723
File Date: July 14, 2005
Title: PIG FOR INSTALLING A CABLE IN A CONDUIT
Confirmation No.: 8739
Examiner: Robert C. Watson
Docket No.: BLAN-37253

APPEAL BRIEF

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
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Sir:

Applicants' submit this Appeal Brief in compliance with
37 CFR § 41.37.

The \$255.00 fee for the brief in support of the appeal is
to be charged to Deposit Account No. 16-0820 at the time of
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(i) **Real Party in Interest:**

The real party in interest is Plumettaz SA.

(ii) **Related Appeals and Interferences:**

None.

(iii) **Status of Claims:**

Claims 1 - 5, 7, and 9 - 11 are rejected. Claim 6 is withdrawn. Claim 8 is cancelled. Claims 1 - 5, 7 and 9 - 11 are appealed herein.

(iv) **Status of Amendments:**

No amendment after final was presented. This case was the subject of a request for continued examination.

(v) **Summary of the Claimed Subject Matter:**

The invention pertains to a pig used to install cable (e.g. communication cable, fiber optics, etc.) in a conduit. The problem is that, in practice, buried or otherwise installed conduit is neither round nor straight. Time is money, so the faster a pig can be pushed down a conduit, and the further it can be pushed from an access point, the greater the productivity. Thus, speed and distance are critical in the use of a cable installing pig.

The invention permits high pressure to be applied to the back of the pig to positively drive it through the conduit despite the problem of significant deviations in the interior of the conduit surface from a true circle and/or a constant diameter that make a hydraulic seal difficult to maintain.

The pig, according to the invention, solves the stated problem by providing a seal 3 with a V-shaped cross-section (page 9, lines 11 - 16). A radially outer side of the V forms a lip (page 9, lines 11 - 16). The body 2 of the pig has a radially elastic relatively thin wall tubular part 9 (page 8, lines 24 - 25, page 9, line 2), on which the seal 3 is mounted and a radially resilient support part 13 (page 8, line 30 - page 9, line 2) fixed to or integral with the tubular part 9. The support part 13 is radially inwardly bounded by the thin wall tubular part 9 and has an outer diameter larger than the main length of the tubular part and an outer diameter larger than the center of the V of the seal (page 9, lines 2 - 8, FIGS. 3 and 6). The support part 13 axially supports the seal 3 and prevents the lip from reversing when subjected to relatively high pressure (page 9, line 30 - page 10, line 4).

The support part 13 has a guide surface 14 arranged to guide the pig. The guide surface 14 outer diameter is slightly less than the maximum diameter of the seal (page 9). The support part 13, consequently, is mechanically resiliently deformed by the interior surface of the conduit operating through the guide surface 14 and it radially deforms the tubular part 9 when the pig passes through the deformed parts of the conduit (page 9, lines 16 - 22).

Stated more simply, the support part 13 is strategically sized relative to the seal 3 and provided with physical characteristics - radially resilient, and axially supporting

of the seal outward of the V-shape to produce a high performance pig.

(vi) **Grounds of Rejection to be Reviewed on Appeal:**

Ground 1: Claims 1 - 5, 7, and 9 - 11 are rejected under 35 USC 112, first paragraph, for reciting "a radially resilient support part" which the Examiner contends has no support and is contrary to the description.

Ground 2: Claims 1 - 5, 7, 9 - 11 are rejected under 35 USC 112, second paragraph, with the contention that the phrase "being radially bounded by the thin wall tubular part" is vague and indefinite and/or a dangling modifier.

Ground 3: Claim 1 is rejected under 35 USC 103(a) as unpatentable over Marcell in view of Workman. The Examiner proposes to put the V-shaped seal of Workman on the pig of Marcell.

Ground 4: Claim 2 is rejected under 35 USC 103(a) as unpatentable over Marcell in view of Workman and Jonnes. The Examiner contends that the teeth of Jonnes are useable with the proposed combination of Marcell and Workman.

Ground 5: Claims 3 - 5 are rejected under 35 USC 103(a) as unpatentable over Marcell, Workman, and Crane. The Examiner contends Crane teaches to make various elements integral.

Further, the Examiner contends one of these references has a front guidance element 7, 10 that is conical and that has a receptacle.

Ground 6: Claims 7 - 10 are rejected under 35 USC 103(a) as unpatentable over Marcell, Workman, Crane, and (Schaer). Specifically, orifices 12 in Schaer are alleged to be pressure-reducers.

Ground 7: Claims 10 - 11 have been rejected under 35 USC 103(a) as unpatentable over Marcell, Workman, Crane, Schaer, and Constant et al. The Examiner contends that the fingers of Constant et al. would be obvious to fit to the combination of the other references.

(vii) **Argument:**

Ground 1: Regarding the rejection of claims 1 - 5, 7, and 9 - 11 under 35 USC 112, first paragraph, the phrase "a radially resilient support part" is criticized by the Examiner. The seal support 13 is described as elastically deformable with the part of the tube 9 on which this element is mounted at page 9, lines 16 - 22. The Examiner is correct in that the support part is described as "rigid" but this in the context of the axial direction as explained at page 8, line 30 to page 9, line 2. That is to say, the support part is rigid axially but "radially resilient", i.e. arranged to "elastically deform" where the conduit diameter is reduced. (See page 9,

lines 14 - 22.) The word "resilient" is used here as a synonym for "elastic".

Ground 2: Regarding the rejection of claims 1 - 5, 7, and 9 - 11 under 35 USC 112, second paragraph, the phrase "being radially inwardly bounded by the thin wall tubular part" is believed to not be dangling since it immediately follows the element being modified, namely, the radially resilient support part. The quoted phrase is intended to describe the support part as being radially inwardly bounded by the thin wall tubular part. It is submitted that the phrase clearly modifies the support part. Additionally, this is made clear by the succeeding and parallel phrase, namely, "having an outer diameter..." which also modifies the support part.

Ground 3: Claim 1 has been rejected under 35 USC 103(a) as unpatentable over Marcell in view of Workman.

Regarding claim 1, as a first observation, apart from the evident hindsight character of this rejection, there could be no reason to combine Workman with Marcell. It should be kept in mind that the present invention is related to a hydraulically propelled pig, the engagement of the seals with the conduit wall permitting pressure to be maintained at the rear of the pig. The Marcell reference is not hydraulically propelled and is intended to coat the interior of a conduit with a lubricant. There is no desired sealing and, in fact, the opposite is intended by Marcell. Note, for example, that

in FIG. 3 of Marcell, lubricant is caused to deliberately leak out of the front "fin". At the trailing end 23, the fin is configured to leave lubricant on the interior wall of the conduit, i.e. to leak rather than seal. Using the piston seal 36 of Workman if, indeed it worked, would defeat the purpose of Marcell and make the Marcell device inoperative and not suitable for its intended purpose. Still further, applicants, in claim 1, defines a pig with a "radially resilient support part" that "axially supports the seal" and has a guide surface that radially deforms the tubular part when the pig passes through deformed parts of the conduit". This disclosed and claimed structure is neither found nor suggested in either Marcell or Workman. There is no equivalent of the support part 13 as disclosed by applicants in either Marcell or Workman. In fact, the metal sleeve 24 of Workman is incapable of being "resilient deformed" but rather, would crush when encountering a conduit bore that was not round and result in the destruction of any sealing effect.

Ground 4: The rejection of claim 2 under 35 USC 103(a) over Marcell, Workman, and Jonnes, is in error for the reasons set out immediately above in connection with claim 1 and for the further reason that Jonnes, like Marcell, is inapposite to a structure which seals against the interior wall of a conduit.

That is to say, if the structure of Workman were employed in either Marcell or Jonnes, it would defeat their purpose and render them inoperative. Again, it is, apart from hindsight,

not understood how these references have been selected to construct an argument that applicants' invention is obvious. It is further noted that none of these references, Marcell, Workman nor Jones recognize the problem of a misshapen conduit and importance of maintaining a seal with the interior surface of such misshapen conduit.

Ground 5: Claims 3 - 5 have been rejected under 35 USC 103(a) as unpatentable over Marcell, Workman, and Crane. Dependent claim 3 recites that the support part is integral with the tubular part, claim 4 recites that the pig comprises at least two bodies and seals, and dependent claim 5 recites that the bodies are essentially identical and mounted axially in tandem. The combination of Marcell and Workman has been addressed in earlier paragraphs where it has been explained that no one skilled in the art would make the combination proposed by the Examiner and if such a combination were made, the result would be inoperative. It is not understood what the teachings of Crane add to the structures of Marcell and Workman in the context of claims 3 - 5. It is noted that there can be no sealing with the structure of Crane since there is no seal disclosed by Crane. Applicants are unable to find any relevant structures in these references, Marcell, Workman, and Crane, that are a "front guidance element 7, 10" as referenced by the Examiner. Nor, does a "front guidance element 7, 10 being conical and has a receptacle" has any relevance to the subject claims 3 - 5.

Ground 6: Claims 7 - 9 are rejected under 35 USC 103(a) as unpatentable over Marcell, Workman, Crane, and Schaer. Claim 7, which is dependent from claim 4 and 1, sets forth a construction with a pressure reducer positioned to distribute pressure between the seals. The Examiner's suggestion that Schaer makes it obvious to put pressure reducing orifices "between the seals of Marcell" is in error for several reasons. First, there are no seals in Marcell, only "a fin 28 which deliberately leaks, and a trailing end 23 that deliberately leaks. Note is made of FIG. 3 of Marcell where the device is arranged to deposit lubricant in front of the fin 28 and the fin is expected to leak and allow a coating of the lubricant to exist after the "dispenser" (not pig) has passed. Accordingly, there would be no reason to employ a pressure reducer between the fin and trailing end of Marcell, nor would one skilled in the art attempt such a thing in Marcell. Further, there is no suggestion in Schaer that his orifices 12 are or could be effective as a pressure reducer. According to Schaer, the orifices 12 or ports 12 deliver water for its cleaning effect. Claim 9, dependent on claim 7, defines a pig comprising a front guidance element with "a conical or splayed front face forming a receptacle for housing a cable ferrule to be extracted from the conduit". None of Marcell, Workman, Crane, nor Schaer respond to this.

Ground 7: Claims 10 - 11 have been rejected under 35 USC 103(a) as unpatentable over Marcell, in view of Workman, Crane, Schaer, and Constant et al. The rejection of claim 10 is in error for the reasons set out above in support of its parent claims and for the further reason that there is no teaching in all of the references, Marcell, Workman, Crane, and Schaer, that they individually or collectively were in need of or would benefit from "elastic fingers inclined so as to give an essentially conical shape to the guidance elements." Moreover, the alleged guidance fingers 8 of Constant et al., at least at their pipe surface contacting zones do not appear to be conical. In fact, a conical shape at this zone as taught by Constant et al. would be counter-productive because there would be essentially no cleaning action which, is the intent of Constant et al. More specifically, the purpose of the elements 8 are "scraper blades" not guiding elements.

Regarding claim 11, there is disclosed a pig wherein "the seal and the support part being disposed close to the open end" of the tubular part of the body having "essentially the shape of a hollow cylinder having an open end and an end at least partially closed by a radial wall". Such structure is not found in any of Marcell, Workman, Crane, Schaer, or Constant et al. alone or in any combination thereof. At the open end of the structure of Marcell, there is no "seal and the support part" existing. It, therefore, follows that applicants' claimed invention presented in claim 11 is neither

shown nor suggested, and is patentably distinguishable over the cited art. Regarding Schaer, there is no teaching of a seal in a support part at either end of his device.

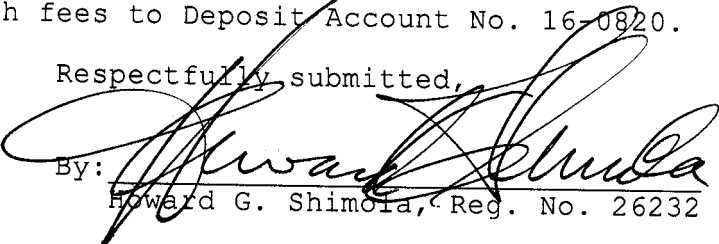
Conclusion

For the reasons stated above, applicants' claims represent a new, useful, and non-obvious hydraulically propelled, cable installing pig. Accordingly, applicants' request the Board of Patent Appeals and Interferences to reverse the rejection of claims 1 - 5, 7, and 9 - 11 and return the case to the Examiner for issuance of a Notice of Allowability.

If there are any fees resulting from this communication, please charge such fees to Deposit Account No. 16-0820.

Respectfully submitted,

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(viii) **Claims Appendix:**

1. A pig for installing a cable in a conduit, wherein it comprises a body and a seal intended to follow the internal surface of the conduit and arranged to make circumferentially continuous pressure sealing contact therewith, the seal having a V-shaped cross-section with a radially outer side of the V forming a lip, the body comprising a radially elastic relatively thin wall tubular part on which the seal is mounted, and a radially resilient support part fixed to or integral with the tubular part, being radially inwardly bounded by the thin wall tubular part and having an outer diameter larger than a diameter of a main length of the tubular part and extending radially outward of a center of the V of the seal such that it axially supports the seal and prevents the lip from reversing when subjected to relatively high pressure, the support part having a guide surface arranged to guide the pig in the conduit, the outer diameter of the guide surface being slightly less than the maximum diameter of the seal, so that the support part is mechanically resiliently deformed by the internal surface of the conduit operating through the guide surface and, in turn, radially deforms the tubular part when the pig passes through deformed parts of the conduit.

2. A pig according to Claim 1, wherein the support part is in the form of teeth extending radially in the tubular part, and comprising an axial support of the seal.

3. A pig according to Claim 1, wherein the support part is formed integrally with the tubular part.

4. A pig according to Claim 3, wherein it comprises at least two bodies and seals.

5. A pig according to Claim 4, wherein the bodies are essentially identical and mounted axially in tandem.

6. A pig according to Claim 4, wherein the bodies are mounted axially in opposition, the seals being mounted at the opposite ends of the pig.

7. A pig according to Claim 4, wherein it comprises a pressure reducer in communication with an annular space between the seals, an internal cavity in the body upstream of the reducer and an external space upstream of the upstream seal through orifices in order to distribute the pressure between the two seals.

8. (cancelled).

9. A pig according to Claim 7, wherein it also comprises a front guidance element comprising a conical or splayed front face forming a receptacle for housing a cable ferrule to be extracted from the conduit.

10. A pig according to Claim 9, wherein the pig comprises front and rear guidance elements, the guidance elements comprising elastic fingers inclined so as to give an essentially conical shape to the guidance elements.

11. A pig according to Claim 10, wherein the tubular part of the body has essentially the shape of a hollow cylinder having an open end and an end at least partially closed by a radial wall, the seal and the support part being disposed close to the open end.

(ix) **Evidence Appendix:**

None.

(x) **Related Proceedings Appendix:**

None.